**!NOT RECOMMENDED FOR NEW DESIGNS!**
**(LAST TIME BUY: 31ST MAR 2026)**

# Features

# Regulated Converter

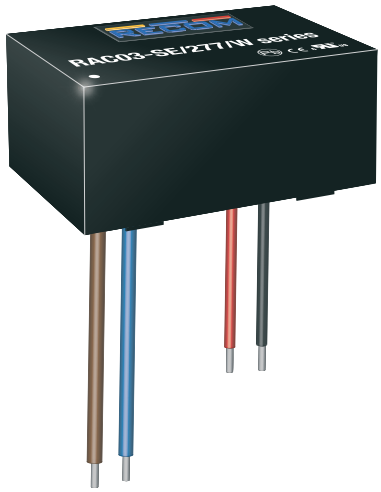
- 30mW max. no load power consumption
- High efficiency up to 80%
- Isolated output 3kVAC / 1 min
- SCP, OVP protection
- Wide operating temperature range: -40°C to +85°C
- Universal input 85-305VAC

RECOM
AC/DC Converter

# RAC03-SE/277/W

## 3 Watt Single Output

3 YEAR warranty




## Description

The ultra-compact wired RAC03-SE/277/W modules are available with output voltages of 3.3, 5, 12 and 24V, and the input-to-output isolation is 3kVAC/1min. With a standby consumption of 30mW typical, the mini power supplies are particularly suitable for energy-saving sleep mode and standby applications. Because of its compact design (height <18mm), it is a versatile solution for home automation and other similar applications. Complete with an integrated input filter, the series has enhanced EMI performance and complies with EN55032, class B. The mini power supplies are also protected against short circuit with fully automatic restart after the error has been solved. The converters are EN/UL60950-1 certified and come complete with a 3 year warranty.

## Selection Guide

| Part Number | nom. Input Voltage Range [VAC] | Output Voltage [VDC] | Output Current [mA] | Efficiency typ (1) [%] | Max. Capacitive Load (2) [µF] |
|---|---|---|---|---|---|
| RAC03-3.3SE/277/W | 100-277 | 3.3 | 900 | 71 | 22000 |
| RAC03-05SE/277/W | 100-277 | 5 | 600 | 76 | 7500 |
| RAC03-12SE/277/W | 100-277 | 12 | 250 | 78 | 1000 |
| RAC03-24SE/277/W | 100-277 | 24 | 125 | 80 | 200 |

**Notes:**

Note1: Efficiency is tested at 230VAC and full load at +25°C ambient

Note2: Max Cap Load is tested at nominal input and full resisitive load

## Model Numbering

RAC03-__ SE/277/W

- nom. Output Power
- Output Voltage
- **W**ired
- **S**ingle

**Ordering Examples:**

| | | | | |
|---|---|---|---|---|
| RAC03-05SE/277/W | 3 Watt | 5Vout | Single Output | Wired Version |
| RAC03-12SE/277/W | 3 Watt | 12Vout | Single Output | Wired Version |

**PREFERRED ALTERNATIVES**
Please consider these alternatives:

**RAC04NE-K/277/W Series**

IEC/EN60950-1 certified
CAN/CSA-22.2 No. 60950 certified
UL60950-1 certified
EN60335-1 certified
EN55032 certified
EN55024 certified
EN55014 certified
CB Report

RECOM

AC/DC Converter

# RAC03-SE/277/W Series

## Specifications (measured @ Ta= 25°C, nom. Vin (115/230VAC), full load and after warm-up unless otherwise stated)

### BASIC CHARACTERISTICS

| Parameter | Condition | | Min. | Typ. | Max. |
|---|---|---|---|---|---|
| Input Voltage Range (3) | nom. Vin= 230VAC | | 85VAC<br>120VDC | 277VAC | 305VAC<br>430VDC |
| Input Current | 115VAC<br>230VAC | | | 70mA<br>45mA | |
| Inrush Current | cold start at +25°C | 115VAC<br>230VAC | | | 15A<br>30A |
| No load Power Consumption | 85-305VAC, 47-63Hz | | | | 30mW |
| Input Frequency Range | AC Input | | 47Hz | | 440Hz |
| Minimum Load | | | | 2% | |
| Hold-up Time | 115VAC<br>230VAC | | | 15ms<br>80ms | |
| Internal Operating Frequency | 100% load at nominal Vin | | | 55kHz | |
| Output Ripple and Noise (4) | | | | 200mVp-p | |

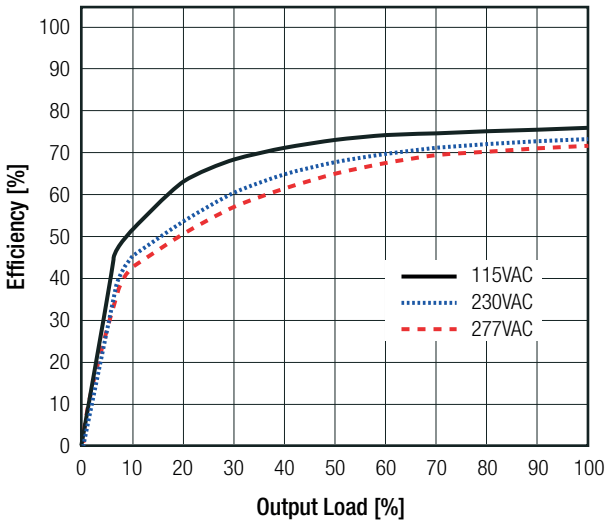
**Notes:**

Note3: No line derating required

Note4: Ripple and Noise is the maximum peak-to-peak voltage value measured at the output with a 20MHz bandwidth, at rated line voltage at full load. And with a 47µF low-ESR electrolytic capacitor in parallel with a 0.1µF ceramic capacitor across output

### Efficiency vs. Load

RAC03-05SE/277/W




### REGULATIONS

| Parameter | Condition | Value |
|---|---|---|
| Output Voltage Tolerance (5) | | ±6.0% max. |
| Line Regulation | low line to high line, full load | ±1% typ. / ±1.5% max. |
| Load Regulation | 10% to 100% load | 6.0% typ. |

**Notes:**

Note5: Includes initial voltage accuracy, thermal drift, line regulation and load regulation at rated input voltage and load conditions

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# RAC03-SE/277/W Series

## Specifications (measured @ Ta= 25°C, nom. Vin (115/230VAC), full load and after warm-up unless otherwise stated)

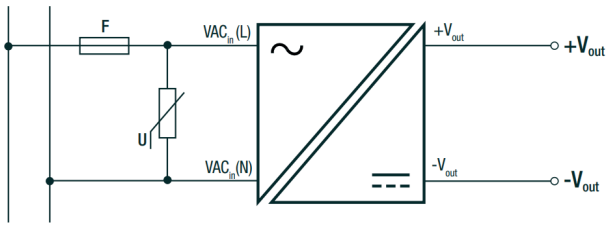
### PROTECTIONS

| Parameter | Type | | Value |
|---|---|---|---|
| Short Circuit Protection (SCP) | below 100mΩ | | continuous, automatic recovery |
| Over Voltage Protection (OVP) | zener diode clamp | | 112% - 140% |
| Over Current Limit | | | 120% - 190% |
| Over Voltage Category | | | OVCII |
| Isolation Voltage | I/P to O/P | tested for 1 minute | 3kVAC |
| Isolation Resistance | | | 1GΩ min. |
| Leakage Current | 85-305VAC, 47-63Hz | | 10µA max. |

**Notes:**

Note6: Refer to local wiring regulations if input over-current protection is also required

**Protection Circuit**




### ENVIRONMENTAL

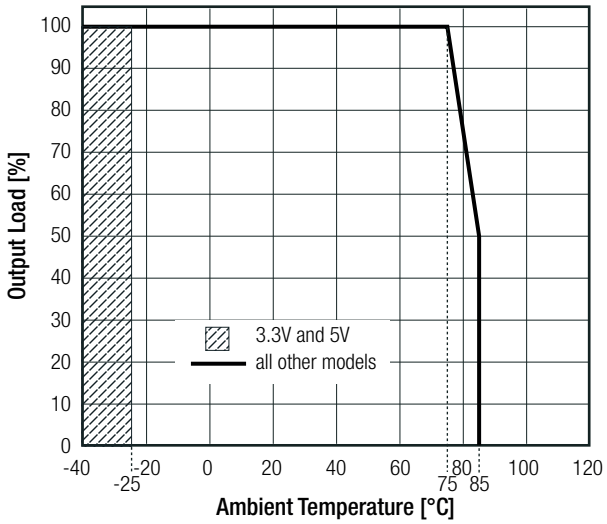
| Parameter | Condition | | | Value |
|---|---|---|---|---|
| Operating Temperature Range (7) | full load, 230VAC | | | -40°C to +75°C |
| | refer to derating graph | | | -40°C to +85°C |
| Maximum Case Temperature | | | | +105°C |
| Thermal Impedance | | | | 10K/W typ. |
| Operating Humidity | non-condensing | | | 5% - 95% RH max. |
| MTBF | according to MIL-HDBK-217F, G.B. | +25°C | 115VAC<br>230VAC | 3503 x $10^3$ hours<br>1816 x $10^3$ hours |

**Notes:**

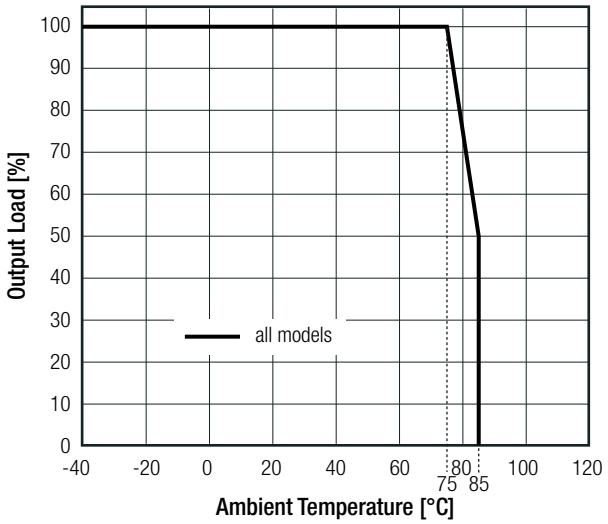
Note7: At low input voltage (85-140VAC) and temperature below -25°C the RAC03-3.3SE/277/W and RAC03-05SE/277/W, will not start

**Derating Graph**

@ 85-140VAC




@ 140-305VAC



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# RAC03-SE/277/W Series

## Specifications (measured @ Ta= 25°C, nom. Vin (115/230VAC), full load and after warm-up unless otherwise stated)

| SAFETY AND CERTIFICATIONS | | |
|---|---|---|
| **Certificate Type (Safety)** | **Report / File Number** | **Standard** |
| Information Technology Equipment, General Requirements for Safety | L0339L26-CB-1-B4 | IEC60950-1:2005 2nd Edition + A2:2013<br>EN60950-1:2006 + A2:2013 |
| Information Technology Equipment, General Requirements for Safety | E224736-X1-A24-UL | UL No. 60950-1, 2nd Edition, 2014<br>CAN/CSA-C22.2 No. 60950-1-07, 2nd Edition, 2014 |
| Household and similar electrical appliances, General requirements | L0339L26-B2-L | EN60335-1:2012+A11:2014 |
| EAC Safety of Low Voltage Equipment | RU-AT.37.02367 | TP TC 004/2011 |
| RoHS2+ | | RoHS-2011/65/EU + AM-2015/863 |
| | | |
| **EMC Compliance (Industrial)** | **Condition** | **Standard / Criterion** |
| Electromagnetic compatibility of multimedia equipment - Emission requirements | | EN55032:2015, Class B |
| Information technology equipment - Immunity characteristics - Limits and methods of measurement | | EN55024:2010 |
| ESD Electrostatic discharge immunity test | ±8kV air, ±4kV contact | EN61000-4-2:2009, Criteria B |
| Radiated, radio-frequency, electromagnetic field immunity test | 3V/m | EN61000-4-3:2006 + A2:2010, Criteria A |
| Fast Transient and Burst Immunity | AC Power Port: ±1kV | EN61000-4-4:2012, Criteria A |
| Power Magnetic Field Immunity | 50Hz, 1A/m | EN61000-4-8:2010, Criteria A |
| Voltage Dips and Interruption | Voltage Dips: >95% reduction<br>>30% reduction<br>Interruption: >95% | EN61000-4-11:2004, Criteria A<br>EN61000-4-11:2004, Criteria A<br>EN61000-4-11:2004, Criteria B |
| Limits of Voltage Fluctuations & Flicker | | EN61000-3-3:2013 |
| | | |
| **EMC Compliance (Household)** | **Condition** | **Standard / Criterion** |
| Electromagnetic compatibility of multimedia equipment – Emission Requirements | | EN55014-1:2006+A2:2011 |
| Information technology equipment - Immunity characteristics - Limits and methods of measurement | | EN55014-2:2015 |
| ESD Electrostatic discharge immunity test | ±8kV air, ±4kV contact | IEC61000-4-2:2008, Criteria A |
| Radiated, radio-frequency, electromagnetic field immunity test | 3V/m | IEC61000-4-3:2006 + A2:2010, Criteria A |
| Fast Transient and Burst Immunity | AC Power Port ±1.0kV<br>DC Output ±0.5kV | IEC61000-4-4:2012, Criteria A |
| Surge Immunity | AC Power Port L-N ±2kV<br>DC Output L-N ±1kV | IEC61000-4-5:2014, Criteria B |
| Immunity to conducted disturbances, induced by radio-frequency fields | AC Power Port 3V, DC Output 3V | IEC61000-4-6:2013, Criteria A |
| Voltage Dips and Interruption | Voltage Dips: >95% reduction<br>>30% reduction<br>Interruption: >95% | IEC61000-4-11:2004, Criteria B<br>IEC61000-4-11:2004, Criteria C<br>IEC61000-4-11:2004, Criteria C |
| Limits of Harmonic Current Emissions | | EN61000-3-2:2014 |
| Limits of Voltage Fluctuations & Flicker | | EN61000-3-3:2013 |

| DIMENSION AND PHYSICAL CHARACTERISTICS | | |
|---|---|---|
| **Parameter** | **Type** | **Value** |
| Material | case<br>potting | black plastic, (UL94V-0)<br>epoxy, (UL94V-0) |
| Dimension (LxWxH) | | 38.25 x 24.35 x 17.4mm |
| Weight | | 29g typ. |

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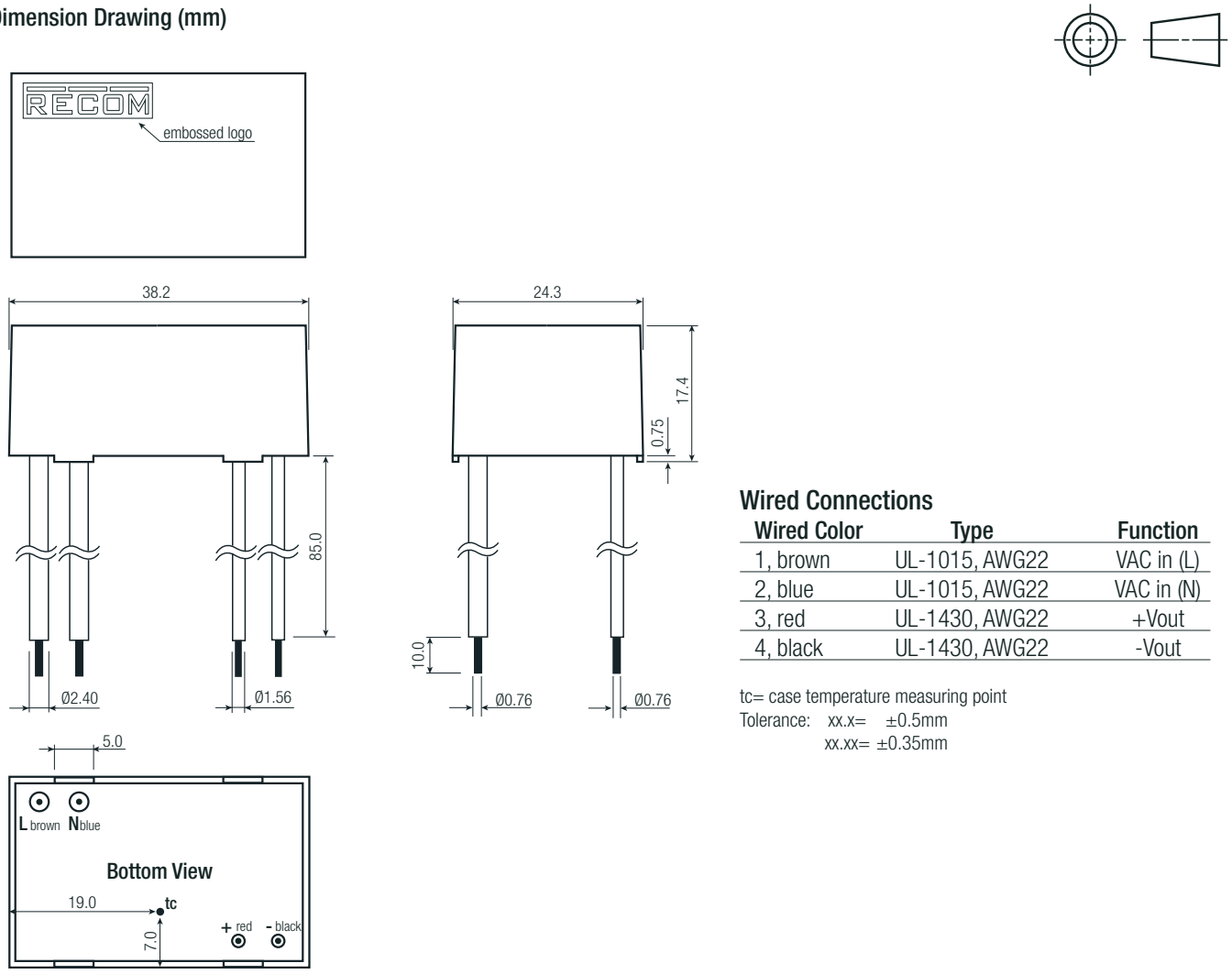
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## Specifications (measured @ Ta= 25°C, nom. Vin (115/230VAC), full load and after warm-up unless otherwise stated)

### Dimension Drawing (mm)




### Wired Connections

| Wired Color | Type | Function |
|---|---|---|
| 1, brown | UL-1015, AWG22 | VAC in (L) |
| 2, blue | UL-1015, AWG22 | VAC in (N) |
| 3, red | UL-1430, AWG22 | +Vout |
| 4, black | UL-1430, AWG22 | -Vout |

tc= case temperature measuring point
Tolerance: xx.x= ±0.5mm
xx.xx= ±0.35mm

| PACKAGING INFORMATION | | |
|---|---|---|
| **Parameter** | **Type** | **Value** |
| Packaging Dimension (LxWxH) | cardboard box | 520.0 x 195.0 x 68.0mm |
| Packaging Quantity | | 30pcs |
| Storage Temperature Range | | -40°C to +85°C |

The product information and specifications may be subject to changes even without prior written notice.The product has been designed for various applications; its suitability lies in the responsibility of each customer. The products are not authorized for use in safety-critical applications without RECOM's explicit written consent. A safety-critical application is an application where a failure may reasonably be expected to endanger or cause loss of life, inflict bodily harm or damage property. The applicant shall indemnify and hold harmless RECOM, its affiliated companies and its representatives against any damage claims in connection with the unauthorized use of RECOM products in such safety-critical applications.